

## SOME NEW RECORDS OF NEMATODES FROM AUSTRALIAN SNAKES

By T. HARVEY JOHNSTON AND PATRICIA M. MAWSON, UNIVERSITY OF ADELAIDE.

Fig. 1-8.

THE parasites recorded below are part of a collection made over a period of years by the senior author, assisted by colleagues in various parts of Australia. To these collaborators (Dr. J. B. Cleland; Dr. O. W. Tiegs; Messrs. G. G., and F. Jaensch; the late Dr. T. L. Bancroft) we are most grateful. Types of new species have been deposited in the South Australian Museum. The following is a list of the parasites examined, arranged under their hosts:

- Python spilotes* Laeep. *Physaloptera confusa* J. and M. (Helensburg, New South Wales).
- Python spilotes* var. *variegatus* Gray. *Polydelphis anoura* (Duj.) (Taronga Park, Sydney, and Gosford, New South Wales; Sandgate, Brisbane, Queensland); *Ophidascaris filaria* (Duj.) (West Burleigh, South Queensland).
- Python amethystinus* Schn. *Polydelphis anoura* (Duj.) (Port Curtis, Queensland).
- Python reticulatus* Schn. *Polydelphis anoura* (Duj.); *Hastospiculum* sp. (Sydney Zoological Gardens).
- Acrochordus javanicus* Homstedt. *Tanqua ophidis* n.sp. (Leichhardt River, North-western Queensland).
- Acanthophis antarctica* Shaw. *Physaloptera confusa* J. and M. (Sydney).
- Denisonia superba* Gunth. *Physaloptera confusa* J. and M. (Tailem Bend, South Australia).
- Demansia textilis* D. and B. *Physaloptera confusa* J. and M. (Tailem Bend, South Australia).
- Demansia psammophis* Schl. *Ophidascaris pyrrhus* J. and M. (Victoria; Sydney); *Physaloptera confusa* J. and M. (Victoria); *Physaloptera demansiae* n.sp. (Sydney).
- Demansia reticulata* Gray. Perhaps *D. psammophis* var. *reticulata*. *Physaloptera confusa* J. and M. (North Western Australia).

*Natrix mairii* Gray (= *Tropidonotus picturatus* Schl. of some Aust. authors).  
*Tanqua ophidis* n.sp. (North Queensland).

*Pseudechis porphyriacus* Shaw. *Physaloptera confusa* J. and M. (Dalby, Queensland; Sydney).

*Notechis scutatus* Peters. *Ophidascaris pyrrhus* J. and M. (Victoria; Taillem Bend, South Australia).

*Furina occipitalis* D. and B. *Kalicephalus* sp. (Burnett River, Queensland).

*Hydrus platurus* Linn. *Paraheterotyphlum australe* ng., n.sp. (Little Bay, Sydney).

Also the lizard, *Varanus varius* Shaw. *Tanqua tiara* (Linst.) (New South Wales).

#### KALICEPHALUS sp.

(Fig. 1.)

From the ring snake *Furina occipitalis*, collected on the Burnett River, Queensland, by the late Dr. T. L. Bancroft.

Females only present, 5-8 mm. in length. Eight cephalic papillae around mouth. Buccal capsule massive around base, laterally compressed; its internal diameter dorsoventrally is .043 mm., from side to side at its widest part .025 mm., and its length .045 mm. The course of the duct of the dorsal oesophageal gland is shown in Fig. 1.

The oesophagus is .28 mm. long in a worm 5 mm. long, the nerve ring surrounding it at .17 mm. from the anterior end of the parasite. The excretory pore lies at the same level as the nerve ring. The vulva is situated just posterior to the midlength of the worm.

#### PARAHETEROTYPHILUM AUSTRALE n.g., n.sp.

(Fig. 2-3.)

From a sea snake, *Hydrus platurus*, washed ashore at Little Bay, Sydney. Material consists of two females and one male worm, the former 10 and 10.5 mm. long, the latter 6.7 mm. long. The head bears three lips, longer than broad; the dorsal with two papillae, the ventrals each with one papilla; interlabia are absent. No teeth were seen on the lips. The oesophagus, 7.6 mm. (female) and 5.6 mm. (male) in length, is rather sac-like and terminates in an ill-defined ventriculus, from which extends a long thin appendix, 3.6 mm. in length in

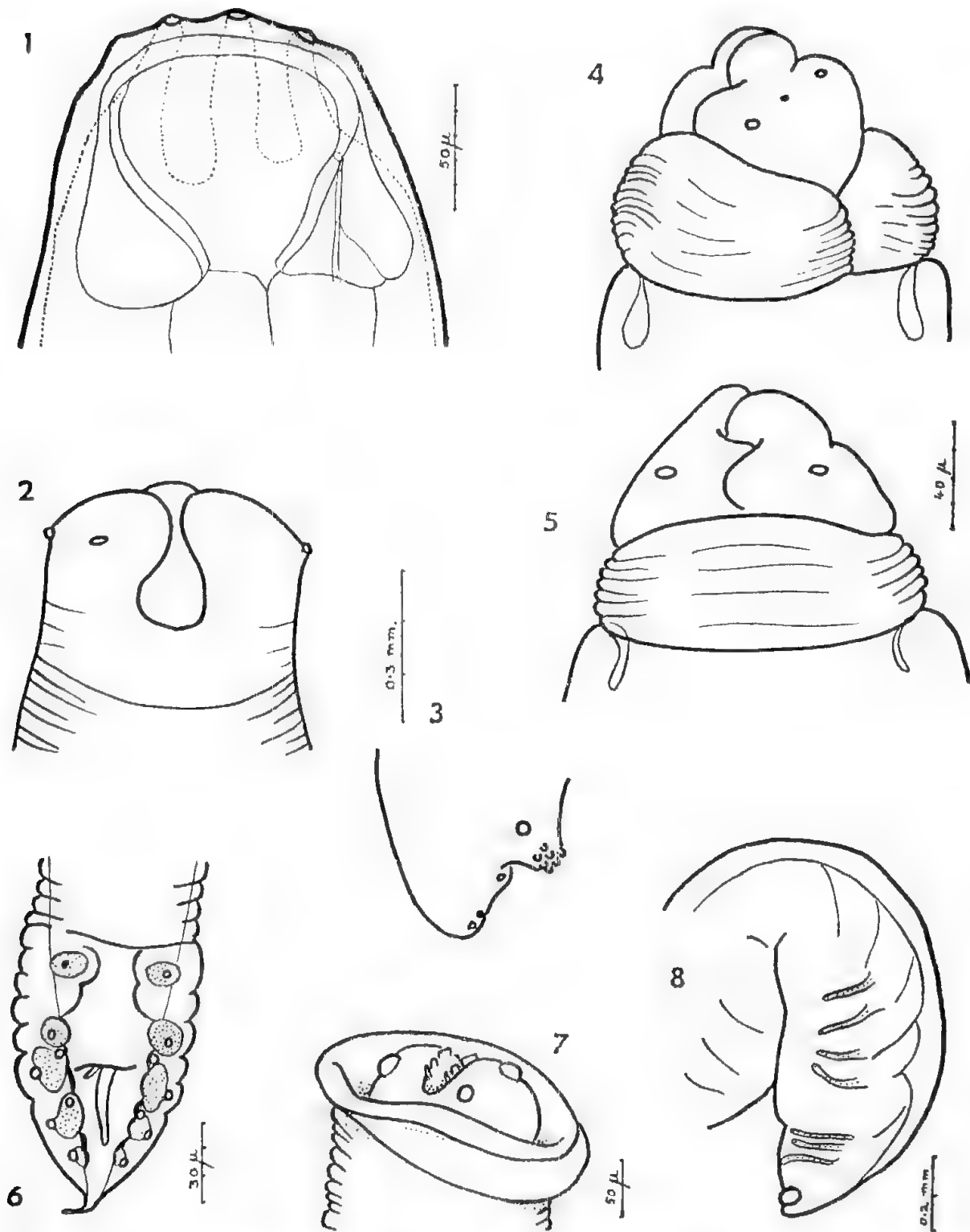


Fig. 1. *Kalicephalus* sp. lateral view of head. Fig. 2-3, *Paraheterotyphlum australe*, 2. head; 3. posterior end of male. Fig. 4-6. *Tanqua ophidis*, 4. and 5. subdorsal and lateral views of head; 6. male tail. Fig. 7-8. *Physaloptera demansiae*, 7. head; 8. male tail. Fig. 2 and 3 to same scale; fig. 4 and 5 to same scale.

female, 2.8 mm. in male. There is a short intestinal caecum, .88 mm. long in the female, .64 mm. in the male.

In the male are about 43 pairs of preanal papillae, as well as a median group of about six to seven pairs just anterior to the arms. There are three pairs of postanal papillae on the short blunt tail. The spicules are .88 mm. long.

The vulva lies in the second quarter of the body length (6.1 mm. from the head). The eggs are subspherical, 45  $\mu$ m. in diameter, with a smooth thick shell.

Generic diagnosis: *Stomachinae*: interlabia present, without denticles on lips; spherical ventriculus, oesophageal appendix and intestinal caecum present. Spicules more or less equal. Vulva in first third of body length.

These characters of the head and alimentary canal occur together only in one genus of *Stomachinae*, namely, *Heterotyphlum* Spaul 1927, described from a deep sea angler fish from Iceland. The present specimens are distinguishable from that genus by the possession of equal spicules.

#### OPHIDASCARIS PYRRIUS J. and M.

This species is now recorded from the tiger snake, *Notechis scutatus*, collected by the late Dr. Dombrian in Victoria; and from Tailem Bend, South Australia (G. G., and F. Jaensch); and also from the grey or whip snake, *Demansia psammophis* from Sydney and from Victoria.

#### OPHIDASCARIS FILARIA Duj.

A new host record for this species is the carpet snake, *Python variegatus*, from which it was taken at West Burleigh, Queensland.

#### POLYDELPHIS ANOURA Duj.

This species is now recorded from *Python reticulatus* (Taronga Park, Sydney), *Python variegatus* (Taronga Park, Sydney, and Gosford, New South Wales; and Sandgate, South Queensland); and from *Python amethystinus* (Port Curtis, Queensland).

#### TANQUA OPHIDIS n.sp.

(Fig. 4-6.)

From a fresh water snake, *Natrix mairii* Gray (type host), collected in the north-eastern coastal region of Queensland by Dr. O. Tiegs; and from *Acrochordus javanicus*, Leichhardt River, North Queensland.

Males up to 27 mm., females to 30 mm. in length. Oesophagus of female 4 mm., of male 3.4 mm. long; and cervical sacs .4 mm. and .24 mm. long respectively. The head bulb is subdivided into two dorsoventral swellings. The nerve ring is .5 mm. from the anterior end in the male.

The vulva lies at about the commencement of the posterior quarter of the body length. The eggs are very small, about  $32\mu$  by  $40\mu$ .

The spicules are typical of the genus, stout, tapering slightly, somewhat swollen at the tip, and beset with fine stiff bristles. The arrangement of the caudal papillae in the male closely resembles that of other species in the genus, and is shown in fig. 6.

Differences between species in this genus appear to lie mainly in the characters of the anterior end. The present specimens resemble *T. anomala* (Linst.), also from *Tropidonotus* spp., and *T. diadema* Baylis, from *Helicops* sp. from Brazil, in having but two divisions of the head bulb. The shape of the lips is more like that figured for *T. diadema*, but there is no deep collar as in that species. In addition, the position of the vulva is more posterior than in *T. diadema*.

#### TANQUA TIARA Linst.

This species is now recorded from the monitor lizard, *Varanus varius* from Gosford, New South Wales. It was previously reported from *Varanus gouldii* by Parona 1898, from Australia or New Guinea.

#### PHYSALOPTERA DEMANSIAE n.sp.

(Fig. 7-8.)

From *Demansia psammophis*, Sydney. Both males and females present. Length of males, 12-15 mm.; females, 20-25 mm. Each lip bears on inner margin one large "blunt" median tooth, and on each side of this two smaller conical teeth. One pair of papillae is also present on each lip. No dentigerous ridge, or series of denticles, was observed. The oesophagus measures 2.4 mm. (female), its muscular anterior part being 1.7 mm. long, surrounded at about its midlength by the nerve ring. The excretory pore is 2.5 mm. behind the head.

The vulva is near the midlength of the body. The posterior third of all the males present in the collection is tightly coiled so that even by cutting the worm it is impossible to obtain a ventral view of the cloacal region. The spicules are acicular, 1.3 mm. and .25 mm. in length. The alae are voluminous and apparently meet ventrally. They support four pairs of pedunculate adanal papillae, three pairs of pedunculate postanal papillae, and a pair of short stout papillae near the tip of the tail. This last pair is of unusual size and is sufficient to distinguish a new species.

## PHYSALOPTERA CONFUSA J. and M.

This species is recorded from *Demansia textilis* (Tailem Bend, South Australia); *Demansia psammophis* (Victoria); and *Pseudechis porphyriacus* (Dalby, Queensland; and Sydney). Females probably belonging to the species were taken from *Python spilotes* var. *variegatus* (Helensburg, New South Wales); *Acanthophis antarctica* (Sydney); *Demansia reticulata* (Western Australia); and *Denisonia superba* (Tailem Bend, South Australia).

## HASTOSPICULUM sp.

From *Python reticulatus*, Sydney Zoological Gardens. Single female present, its length 37.4 mm. As specific identification in this genus depends on the characters of the male, this specimen cannot be assigned to a species. The pair of very small toothlike projections about the mouth are bifid. The anterior part of the oesophagus is .6 mm. long, surrounded near its base by the nerve ring. The vulva is very small, 2 mm. from the head end.

## LITERATURE.

Baylis, H.A. and Lane, C. (1920): *Proc. Zool. Soc.*, 1920, pp. 245-310.